

# Hemanth Reddy Allugunti

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## EDUCATION

### SRMIST

*Bachelor of Technology in Artificial Intelligence*

Kattankulathur, Chennai, Tamil Nadu

*Sep. 2021 – May 2025*

## EXPERIENCE

### Research Experience

November 2023 – Present

*Undergraduate Researcher*

*SRMIST, KTR*

- Conducted a comparative study titled "A Comparative Study between Traditional CNN and Quantum CNN in Face Recognition," currently finalizing outcomes and insights
- Currently researching the possible uses of Quantum CNNs in improving face recognition through advanced machine learning and quantum computing frameworks, and exploring their inner workings

## PROJECTS

### Quantum-CNN | *Python, Tensor-Quantum, Cirq, scikit-learn, TensorFlow/Keras*

June 2024 – Present

- Building a Quantum inspired CNN Model using TensorFlow Quantum and Cirq for enhanced object detection capabilities
- Integrating quantum circuit simulations with Cirq and TensorFlow's quantum layers.
- Aiming to leverage entanglement and quantum feature extraction for improved accuracy in detecting complex patterns.

### RetailVisionAI | *PyTorch, Flask, Microservices, JSON, YOLO*

November 2024 – Present

- Developed an AI pipeline using Flask and PyTorch for product detection in retail images.
- Implemented YOLO for real-time object detection, improving detection accuracy and speed.
- Designed microservices to process images and return structured JSON responses for product grouping.

### Biometric Face Recognition System | *Python, OpenCV, NumPy, TensorFlow*

February 2024

- Built a Biometric face recognition system using CNNs for image classification
- Integrating Harr Features and Integral Images for feature extraction, and deploying a Haar Cascade Classifier for real time face recognition

### AI-Driven Conversational Agent | *Groq API, LangChain, Streamlit, Python, JavaScript*

August 2024

- Developed an AI-based conversational agent capable of human-like interactions by leveraging Groq API model
- Integrated LangChain for advanced language model management, enabling real-time contextual understanding and dynamic response generation
- The agent has been optimized and deployed on Streamlit, improving user experience with a smooth and responsive UI.

### Negotiation Chatbot | *Rasa, Python, Natural Language Processing (NLP), Custom Policies*

September 2024

- Developed a negotiation chatbot simulating real-time price negotiations, leveraging pre-trained AI models and Rasa's NLU pipeline for intent classification, slot filling, and dynamic dialogue management.
- Integrated custom logic to evaluate user offers against predefined pricing thresholds, providing tailored responses based on negotiation outcomes and guiding users through the purchase flow.

## TECHNICAL SKILLS

**Programming Languages:** Python, SQL

**Machine Learning and AI:** TensorFlow, PyTorch, Scikit-learn, NLP

**Computer Vision:** OpenCV, YOLO, Scikit-Image

**Other Tools:** LangChain, Rasa, Flask, Streamlit